



Chengdu, China

中国成都

DRONE ENABLE/2

10 to 14 September 2018

Leslie Cary

Chief – RPAS Programme

A Successful Year at ICAO





- **Regulations that support:**
 - Design and manufacture
 - Airspace management and access
 - Interaction with manned aircraft
 - Safety
 - Security
 - Efficiency
 - Sustainability





ICAO

SAFETY

Regulators' challenges



Hobby / Recreational flying
What Can I Do With My Model Aircraft?
 Having fun means flying safely! Hobby or recreational flying doesn't require FAA approval but you must follow safety guidelines. Any other use requires FAA authorization.

NEVER DO ANYTHING HAZARDOUS TO OTHER AIRPLANE OR PEOPLE AND PROPERTY ON THE GROUND

- DO fly a model aerobically at the local model aircraft club or fly safely.
- DO take lessons and learn to fly safely.
- DO control the amount of control power when flying within 5 miles of the airport.
- DO fly a model aircraft for personal enjoyment.

- DON'T fly over manned aircraft or the operator.
- DON'T fly an aircraft weighing more than 55 lbs unless it's certified by an aeronautical community-based organization.
- DON'T fly contrary to your aeronautical community-based safety guidelines.
- DON'T fly model aircraft for payment or commercial purposes.

For more information about safety, check out www.faa.gov or www.knowbeforeyoufly.org

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AGRICULTURE DRONE PERMIT APPLICATION FORM

Date: _____ Date for use of Drone: _____

SECTION ONE - BUSINESS INFORMATION
 Company name: _____
 Address: _____
 Company representative or site: _____
 Business phone: _____ Cell phone: _____
 Email: _____

SECTION TWO - DRONE INFORMATION
 Drone model and serial number: _____
 Drone size: _____
 Special Pilot Operations Certificate #: _____

SECTION THREE - PROJECT INFORMATION
 Describe purpose for using Drone: _____
 Describe where Drone will be used: _____



REMOTE PILOT LOGBOOK

RPAS / UAS / UAV

Meets ICAO, EU and the Swedish CAA requirements.







Civil Aviation Authority

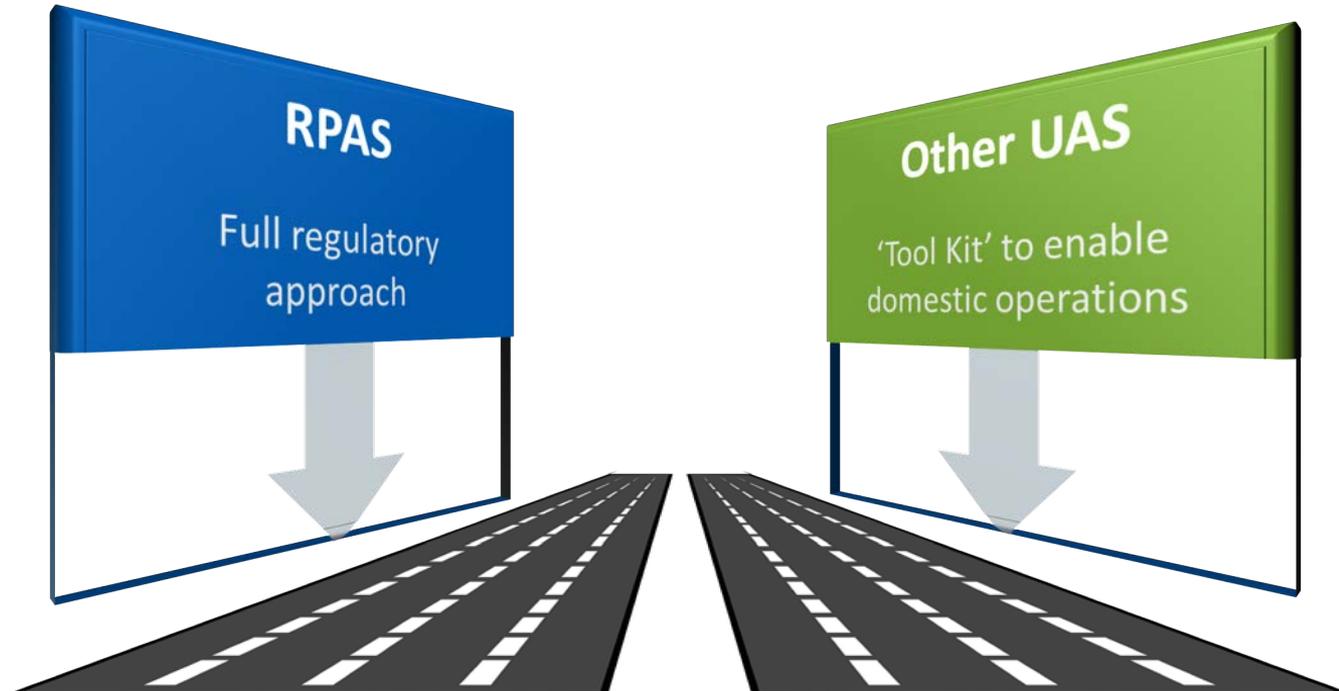
CIVIL AVIATION REGULATIONS
 RPAS OPERATOR'S CERTIFICATE - ROC
 NUMBER U-12RP45

I, Margaret Moon, a delegate of the Civil Aviation Authority, under subregulation 11.055 of the Civil Aviation Safety Regulations 1996 (CASR 1996), being satisfied that the requirements of regulation 101.335 of CASR 1996 have been met, hereby certify:

Big Bear Camera PTY LTD
 UAS 833832 ACN 084 684 205

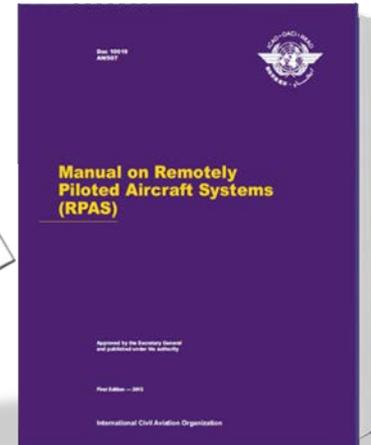
Trading as
OVERCAM

Two Approaches – Two Streams of Work



RPAS - FULL Regulatory Approach

- International IFR operations
- Requirements to initiate international operations:
 - Certificates
 - Remote pilot licence
 - Airworthiness
 - RPAS Operator



- **RPAS Panel**

- Developing the regulatory framework for RPAS to conduct IFR operations in controlled non-segregated airspace/aerodromes
- RPA operate alongside manned aircraft, as a predictable, cooperative airspace user:



- **Other ANC Panels supporting on technical matters**





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Actions on the full regulatory approach

UAS phenomenon
touches all of
aviation and all the
ICAO Annexes

- **Annex 1 - Personnel Licensing** **Approved**
- **Annex 2 - Rules of the Air**
- Annex 3 - Meteorological Services
- Annex 4 - Aeronautical Charts
- Annex 5 - Units of Measurement
- Annex 6 - Operation of Aircraft
- **Annex 7 - Aircraft Nationality and Registration Marks**
- **Annex 8 - Airworthiness of Aircraft** **To be reviewed in 2019**
- Annex 9 - Facilitation
- Annex 10 - Aeronautical Telecommunications
- Annex 11 - Air Traffic Services
- Annex 12 - Search and Rescue
- **Annex 13 - Aircraft Accident and Incident Investigation**
- Annex 14 - Aerodromes
- Annex 15 - Aeronautical Information Services
- Annex 16 - Environmental Protection
- Annex 17 - Security
- Annex 18 - The Safe Transportation of Dangerous Goods by Air
- Annex 19 - Safety management

RPAS: Other work within ICAO

- Legal Committee
- Committee on Aviation Environmental Protection (CAEP)
- Aviation Security Panel (AVSECP)
- Air Navigation Services Economics Panel (ANSEP)
- Aerodrome Economics Panel (AEP)

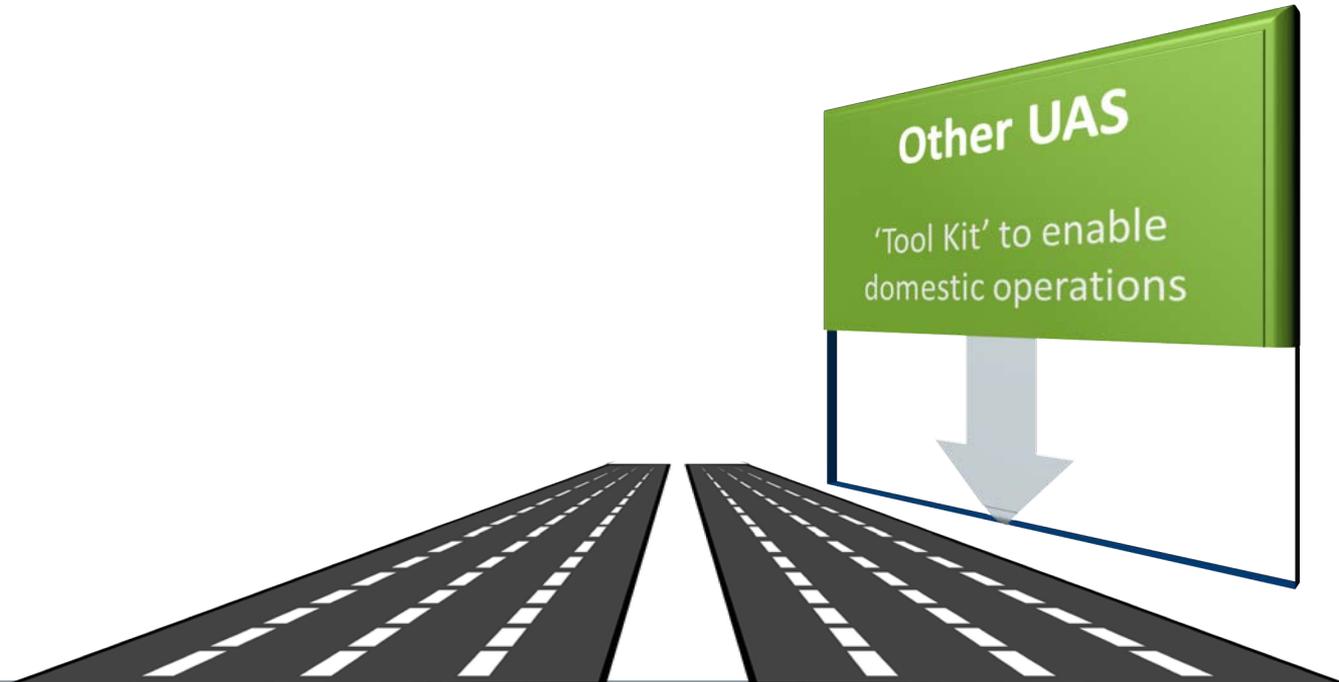


Concern about drones

- High Level Safety Conference, February 2015
 - Action to protect international flights from drones
- Assembly/39, October 2016
 - Baseline of provisions for UAS outside of RPAS IFR international framework
- Air Navigation Conference 13
9-19 October 2018



Two Approaches – Two Streams of Work



Other UAS

- **Principles of Aviation Regulation Apply!**
 - Airworthiness
 - Rules of the Air
 - Educated operators and remote pilots
 - Safety management
- **Scaled to level of risk posed to others**
 - Certificate of Airworthiness vs consumer product certification
 - Separation standards vs distance from structures
 - Licence vs operational limitations
 - Risk to third parties: 80,000 kg vs 2 kg



Same UAS – different applications



Other UAS

- **Toolkit developed by the UAS Advisory Group**

- General guidance for national regulations
- Best practices and lessons learned from many States
- Practical examples
- <https://www.icao.int/safety/UA/UASToolkit/>

- **Expanding through DRONE ENABLE**

- Framework for UTM
- Registration, ID, tracking systems
- Communications systems
- Geo-fencing like systems
- **UTM and ATM interoperability**



Aircraft Registry Network



The screenshot shows the homepage of the Futureland Drone Registration Website. At the top left is the Futureland logo, and at the top right is a 'Sign Out' button. The main banner features a photograph of a drone in flight against a blue sky with clouds and a bright sun. The text 'DRONE REGISTRATION WEBSITE' is overlaid on the right side of the banner. Below the banner, the heading 'FUTURELAND' is centered. Underneath is a welcome message: 'Welcome to FUTURELAND's registration website for remote piloted/autonomous flight aircraft'. A paragraph of smaller text follows, stating: 'This website provides a platform for registration services covering unmanned flight aircraft and "micro" (maximum weight of complete information from certificate of registration, flexible aircraft operating, 500g maximum with Futureland specific registration and flight registration)'. The next section is titled 'Registration Instructions' and contains a paragraph: 'Please follow the registration instructions outlined in the coming days. As you progress through the registration process you will be required to provide the following categories of information: Aircraft Category, Registration Type, Serial Information, Promotion Information. Based on your registration process, you may be prompted to provide additional serial or promotion information. Please complete the registration function in accordance with the following processing: Proof of ownership, Statement of construction from plans or the manufacturer, Evidence of the aircraft's CofC, Name of manufacturer, Model and serial number'. Below this is a prominent blue button labeled 'START NEW REGISTRATION'. At the bottom, there is a 'Policy:' section with a paragraph of text: 'The privacy policy sets out how Futureland will use personal data you provide to us when you use the website. Whilst we will use the personal information you provide to us to provide you with the services you have requested, we will also use your data to improve our services and to inform you of any changes to our services. You should visit our website regularly to ensure that any changes to our services are up to date.'

What's next?

RPAS

Full aviation regulatory approach



Other UAS

- UAS Toolkit
- UTM
- Registration
- Network deliveries



More other

- Air "taxis"
- "Autonomy"





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North American
Central American
and Caribbean
(NACC) Office
Mexico City

South American
(SAM) Office
Lima

ICAO
Headquarters
Montréal

Western and
Central African
(WACAF) Office
Dakar

European and
North Atlantic
(EUR/NAT) Office
Paris

Middle East
(MID) Office
Cairo

Eastern and
Southern African
(ESAF) Office
Nairobi

Asia and Pacific
(APAC) Sub-office
Beijing

Asia and Pacific
(APAC) Office
Bangkok



THANK YOU